

PATENT

REMARKS

This paper is responsive to the Final Office Action dated April 12, 2006 (the "Final Office Action").

Claims 1-18 were previously pending in the application.

Claim 1, 3, 7, 9, 13, and 15 has been amended in this paper. The amendments add no new matter and are fully supported by the Specification and Drawings as originally filed.

Claims 19-24 have been added in this paper.

Claims 2, 8, and 14 have been canceled in this paper.

Accordingly, claims 1, 3-7, 9-13, and 15-24 are now pending in the application.

Claims 1, 3-7, 9-13, and 15-18 stand rejected.

Claims 1, 7, and 13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,151,582 issued to Huang et al. ("*Huang*") in view of Papageorgiou et al., "Faster Evaluation of Multidimensional Integrals," preprint, Department of Computer Science, Columbia University, June 1997 ("*Papageorgiou*"). While no explicit grounds for rejection are set forth in the Final Office Action for the rejection of claims 3-6, 9-12, and 15-18, Applicant understands these claims to be rejected as being dependent upon rejected claims.

While not conceding that the Examiner's cited reference qualifies as prior art, but instead to expedite prosecution, Applicant has elected to respond to the pending rejections as follows.

The following arguments are made without prejudice to Applicant's right to establish, for

PATENT

example in a continuing application, that one or more of the cited references do not qualify as prior art with respect to an invention embodiment currently or subsequently claimed. Applicant respectfully submits that the claims are patentable and requests reconsideration of the pending rejections in view of the following remarks.

Allowable Subject Matter

Applicant expresses continued gratitude for the Examiner's indication that claims 3-6, 8-12, and 15-18 would be allowable if rewritten to include all of the limitations of the base claims and any intervening claims. At this time, Applicant elects not to amend these claims in view of the following arguments regarding the allowability of the corresponding base claims.

Applicant notes that allowable claim 3 includes the limitations of **"determining a feasible region Ω and an infeasible region $\bar{\Omega}$, the feasible including all points where the demand for the specified products can be met with the current levels of the components required to produce the specified product, the infeasible region including all points where the demand for the specified products cannot be met with the current levels of the components required to produce the specified product."**

Allowable claim 3 has been amended to include additionally the limitations of claim 2 (now canceled). Applicant respectfully submits that claim 3 therefore remains allowable under § 103(a). Similarly, allowable claim 9 has been amended to include additionally the limitations of claim 8, and allowable claim 15 has been amended to include additionally the limitations of claim 14. Applicant therefore respectfully submits that claims 9 and 15 therefore also remain allowable under § 103(a).

PATENT

Formal Matters

In the discussion on p. 2 of allowable subject matter, the Final Office Action mentions "the rejection(s) under 35 U.S.C. 101 [] set forth in this Office action." Applicant understands this phrase to be in error, since the Final Office Action does not state a ground for rejection under § 101 for any of the pending claims. Further, the Final Office Action affirmatively states that "Applicant's amendment has overcome the 35 U.S.C. 101 rejection." Accordingly, Applicant understands that no rejections are pending under § 101. If this understanding is in error, Applicant respectfully requests that the grounds for any rejections under § 101 be set forth in a non-final office action so that Applicant may have an appropriate opportunity to respond to such rejections.

Rejections under § 103(a)

Claims 1, 7, and 13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,151,582 issued to *Huang* in view of *Papageorgiou*. Applicant respectfully submits that the claims are allowable under § 103(a), as set forth in Applicant's previous Response (dated December 19, 2005). Nonetheless, to further prosecution, Applicant has amended claims 1, 7, and 13 as set forth above. Applicant reserves the right to re-introduce the previous version of claims 1, 7, and 13, for example in a continuing application.

PATENT

As amended, Applicant's claim 1 reads as follows.

1. A computer-implemented method for the estimation of mean production for assemble-to-order manufacturing operations, the method comprising the steps of:
receiving an identification of one or more products to be analyzed;
receiving data describing components required to produce the products;
**determining a feasible region, the feasible region comprising conditions where
a supply of the components meets a demand for the products;**
formulating a sum of multidimensional integrals corresponding to the estimation of mean
production for the products;
evaluating the sum of multidimensional integrals.

Applicant respectfully submits that the cited art fails to disclose various limitations of claim 1. For example, neither *Huang* nor *Papageorgiou* describes the determining of a feasible region. The feasible region includes conditions where a supply of components meets a demand for products. At best, the cited art describes procedures where a repair plan that is not feasible is modified to be feasible, as set forth in the following passage from *Huang*.

Requirements-Supply Reconciliation Planning Process

The second process is the Requirements-Supply Reconciliation Planning process 100 that aims at developing an integrated repair plan for the repair shop through a reconciliation process. First, the type and parameters of the repair policy of the repair shop are to be determined. Aggregate repair requirements are generated based on the repair policy of the repair shop and estimated consolidated requirements for all facilities. The next step is to generate an aggregate repair plan based on repair time estimates for each repairable part and the aggregate repair requirements. Feasibility of the aggregate repair plan is checked with respect to resource constraints which are repair resource capacities and key component availability. If the aggregate repair plan is not feasible with respect to resource constraints, then causes for infeasibility are identified and the infeasibility is removed by either changing the level of the resource constraints or moving aggregate requirements forward or backward in time. This procedure is repeated until an aggregate

PATENT

repair plan that is feasible with respect to resource constraints is attained. The supply management 102 (see FIG. 9) is a process to determine the repair plan considering repair people, test equipment and key components. It starts by the translation of the aggregate repair plan into a detailed plan concerning repair resources (repair persons and test equipment), and component requirements. Based on these requirements and the capacity constraints for the repair resources, repair personnel and key components, a detailed repair plan is developed using an optimized based modeling approach. The detailed repair plan is used to generate the key component delivery schedule to be transmitted to the component suppliers. In addition, the supply management process 102 is also concerned with the development of appropriate procurement policies for key components in terms of identifying the policies, and deriving the corresponding policy parameters.

Huang at col. 17 lines 1-36.

Huang thus describes the adjustment of a repair plan that is not feasible into one that is feasible by either changing the level of resource constraints or moving aggregate requirements forward or backward in time. The *Huang* procedure is repeated until an aggregate repair plan that is feasible with respect to resource constraints is attained. *Id.*

However, *Huang* does not describe the **determination of a feasible region** that includes a set of conditions where a supply of components meets a demand for products. *Huang* merely relates to the analysis of individual situations. As set forth in the above-cited passage from *Huang*, such a situation may be generated as an "aggregate repair plan" that is based on repair time estimates for each repairable part and the aggregate repair requirements. The feasibility of the aggregate repair plan is checked, and the situation may be modified as needed. This review of a particular situation is not performed to determine a feasible region of conditions: at most, *Huang* ascertains whether a particular situation is feasible or not. The *Huang* analysis merely evaluates feasibility on a situation-by situation basis. No aspect of *Huang* teaches or suggests

PATENT

the outlining or demarcating or identifying of a feasible region of conditions; the *Huang* analysis would not be useful to determine a region of conditions that meet criteria such as feasibility.

Thus, *Huang* does not disclose **determining a feasible region, the feasible region comprising conditions where a supply of the components meets a demand for the products.** Further, Applicant also does not find this limitation in *Papageorgiou*. Since this limitation is absent from the cited art, Applicant respectfully submits that claim 1 and all claims dependent therefrom are allowable under § 103(a). At least for similar reasons, claims 7 and 13 and all claims dependent therefrom are also allowable under § 103(a). Accordingly, Applicant respectfully requests that the rejections under § 103(a) be withdrawn.

Further, as set forth in Applicant's previous Response (dated December 19, 2005), the cited references lack a teaching or suggestion to combine *Huang* and *Papageorgiou* as used in support of the rejections under § 103(a). The Final Office Action refers to remarks in the previous Office Action (dated August 17, 2005) (the "Office Action"), which proposes that it would have been obvious to a person of ordinary skill in the art to modify the disclosure of *Huang* with the teachings of *Papageorgiou* "to determine the accuracy of the product production." However, neither *Huang* nor *Papageorgiou* discuss product production or the accuracy of production.

Applicant notes that *Huang* does discuss "accuracy," albeit in a different context than that set forth in the Office Action. *Huang* sets forth tools for assessing the accuracy of past sales forecasts. *Huang* at col. 22, lines 38-53, *ff.* However, these assessments of past sales forecasts are not related to the Office Action's proposed motivation of determining the accuracy of product production, since sales forecasts are hypothetical prospective estimates and product

PATENT

production is an actual real-time process. Further, this discussion of accuracy in *Huang* is self-contained. *Huang* sets forth adequate and complete techniques for assessing the accuracy of past sales forecasts, including various alternative assessments and the corresponding mathematical formulations. See, e.g., *id.* at col. 90, lines 12-44. A person of ordinary skill in the art therefore would not look beyond *Huang* to seek techniques for assessing the accuracy of past sales forecasts, and would not turn to *Papageorgiou* with such a motivation. The motivation proposed in the Office Action would not present itself to a person having ordinary skill in the art. A skilled practitioner reading *Huang* would not be motivated to determine the accuracy of product production, and would certainly not turn to *Papageorgiou* with the motivation proposed in the Office Action.

Applicant further notes that the converse is also true: a skilled practitioner reading *Papageorgiou* would also not find therein a suggestion or motivation turn to *Huang*. *Papageorgiou* is a mathematical analysis that reports on test results for various quasi-Monte Carlo techniques of dealing with multidimensional integrals. This reference does not discuss, teach, or suggest the concept of determining the accuracy of product production. Further, *Papageorgiou* also does not suggest or set forth a motivation for a reader to seek tools for assessing the accuracy of past sales forecasts. Additionally, Applicant sees no other aspect of *Papageorgiou* that could be understood as providing a suggestion or motivation to a skilled person to combine this reference with *Huang*.

With the cited references lacking such a motivation or suggestion for the proposed combination of references, the Office Action fails to establish a *prima facie* case of obviousness. Accordingly, Applicants respectfully submits that for this reason as well, independent claim 1, and all claims dependent therefrom, are allowable under § 103(a). At least for similar reasons,

PATENT

independent claims 7 and 13, and all claims dependent therefrom, are also allowable under § 103(a). For at least this reason, Applicant respectfully requests that the rejections under § 103(a) be withdrawn.

Additionally, Applicant respectfully submits that, even if such a combination were based on a proper motivation or suggestion, the combination of *Huang* as *Papageorgiou* would not lead to a reasonable expectation of success in reaching the method of Applicant's claim 1. The cited section of *Huang* describe a domain support system that allows a user to access dialog boxes for editing, creating, and deleting user domains. *Huang* at col. 104, lines 5-67. The techniques of *Huang* would not benefit from the use of *Papageorgiou's* teachings regarding multidimensional integrals. Indeed, Applicant submits that the use of multidimensional integrals would not lead to any useful result in the system of *Huang*, since it is not clear how such mathematical techniques would benefit the system of *Huang*.

Huang refers to "integration" at several points. For example, this reference describes a Supply Chain Frame Manager that is responsible for two types of integration: System Integration and Functional Integration. A System Integrator is responsible to interpret a client's request, to dispatch the request to the appropriate servers, and to coordinate a computation load and data access. A Functional Integrator provides the functionality associated with overall supply chain, as opposed to individual frames. These functionalities include Supply Chain Configuration, Domain Management, user access or privilege administration, and performance monitoring or simulation. *Id.* at col. 90, line 63—col. 91, line 6.

These features of "integration" in *Huang*, however, are related to activities of combining and coordinating activities in a process. They refer to "integration" in the context of management and organization, not in the mathematical sense of integration. They are therefore

PATENT

not related to the mathematical integration that is the subject of *Papageorgiou*. A person of ordinary skill in the art would readily recognize that the mathematical techniques of *Papageorgiou*, and in particular, the multidimensional mathematical integration tools therein, would not be usable for the "integration" functions of *Huang*.

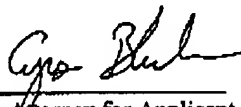
Accordingly, Applicant respectfully submits that the proposed combination of references would not lead to a reasonable expectation of success. For this reason as well, independent claim 1, and all claims dependent therefrom, are allowable under § 103(a). At least for similar reasons, independent claims 7 and 13, and all claims dependent therefrom, are also allowable under § 103(a). For at least these reasons as well, Applicant respectfully requests that the rejections under § 103(a) be withdrawn.

CONCLUSION

Applicant submits that all claims are now in condition for allowance, and an early notice to that effect is earnestly solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephonic interview, the Examiner is requested to telephone the undersigned.

I hereby certify that this correspondence is being facsimile transmitted to the U.S. Patent and Trademark Office,

Fax Number 571-273-8300 on June 12, 2006.


Attorney for Applicant

2006 June 12
Date of Signature

Respectfully submitted,



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